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ECOLOGICAL AND DISTRIBUTIONAL NOTES  
ON *EREBIA DISA* (SATYRIDAE)  
IN CENTRAL CANADAJOHN H. MASTERS<sup>1</sup>

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*Erebia disa* (Thunberg) is a circumpolar species with several geographic subspecies including *mancinus* Doubleday which occurs in central Canada west to the Rockies. As late as 1936 (Warren), *E. disa* was not known to occur east of the Alberta Rockies in North America; however, Brooks (1942) recorded it from Aweme and Gillam, Manitoba and Riotte (1959) recorded it from five localities in extreme northern Ontario east to Smoky Falls. More recently its range has been found to be more extensive and complete. Riotte (1962) recorded it at Hymers, Ontario, near the Minnesota border; John Polusny and C. S. Quelch (*in litt.*) captured specimens in Southwest Manitoba at Sandilands Provincial Forest during June 1967; I captured three specimens at Riding Mountain National Park, Manitoba on 25 June 1967; and during June and July of 1968, Patrick J. Conway and I filled in many gaps in the range by discovering eight colonies in Manitoba and Ontario (figure 1.).

I found *Erebia disa* restricted to black spruce/sphagnum bogs and especially those bogs having tall, dense stands of pure spruce. In this habitat, *disa* was encountered among the larger spruce, but a few strays were observed in more open bog areas or along roads bordering bogs. Ehrlich (1956) found that *E. disa* in Alaska always appeared to be associated with spruce forest, but noted strays in sedge marshes or crossing roads. Ehrlich also noted numbers of *disa* sucking moisture from a damp road at mile 1316 on the Alaska Highway. In the Palearctic Region, *E. disa* is usually depicted as being associated with marshes, however, in Norway, Sheldon (1913) found that *disa* preferred a wet "moor" overgrown with *vaccinium* rather than nearby swamps and marshes.

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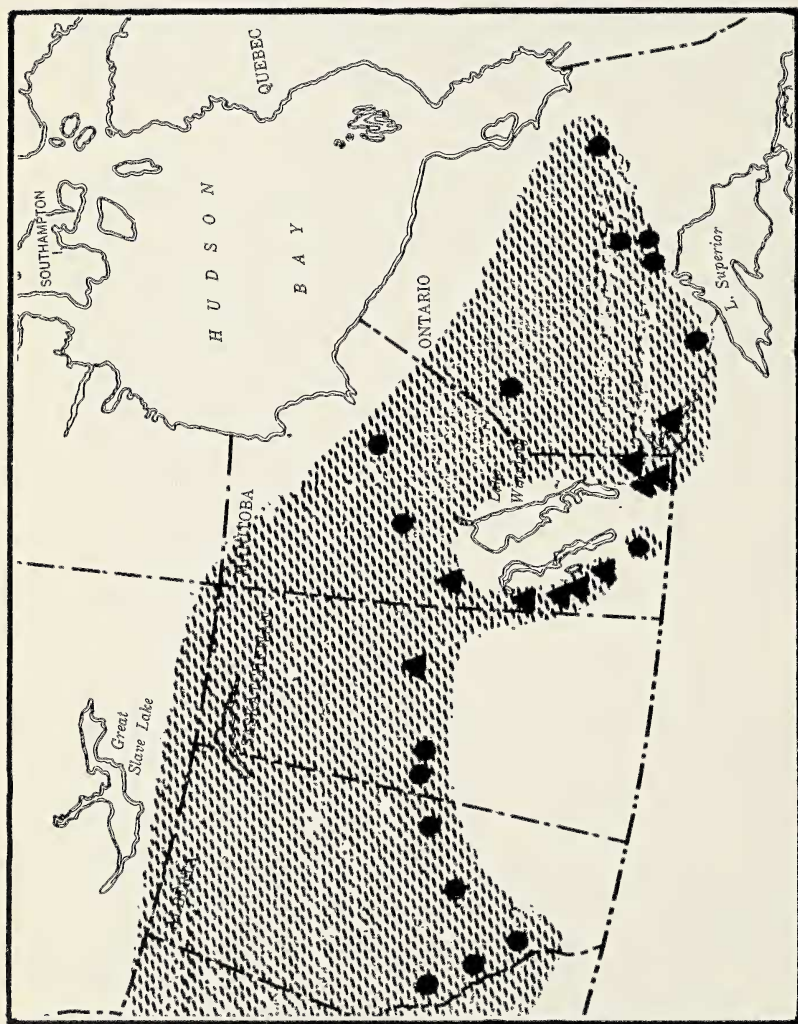


Figure 1. Central Canada showing expected range of *Erebia disa mancinus* Doubleday (shaded area), perviously known localities (circles) and newly reported localities (triangles).

*Erebia disa* has a decided tendency to shun bright sunlight and, for the most part, will fly in the morning before 11:00 A.M. and again in the evening after 4:00 P.M. On cloudy days they will fly through the noon hours, but on sunny days can be flushed with difficulty from foliage at the base of spruce trees. *E. disa* flies slow and steady about three feet off of the ground and prefers lighting in partial sunlight on low foliage at the base of spruce trees. The slow flight can be deceptive as unlike *Oeneis jutta* (Hubner), which darts back and forth in rapid flight, *disa* will maintain a linear direction through a bog and can quickly outdistance a collector. Because *Erebia disa* is a forest dweller, I thought that it might exhibit some degree of territorialism, as was noted in forest dwelling *Oeneis* (Masters and Sorensen, 1969), but territorial behavior was not detected. In Satyridae, territorialism and "hilltopping" seem to be closely related; Shields (1968) includes *Erebia* among a list of genera that "are apparently devoid of hilltopping species."

*Oeneis jutta* was the only other species that always seemed to be associated with *Erebia disa* (also noted by Ehrlich, 1956).

*Erebia disa* might have a biennial flight as do several Palearctic *Erebia* including *E. claudina* (Bkh.) and *E. ligea* (L.). The late Richard J. Fitch, formerly of Rivercourse, Saskatchewan, first collected *E. disa* in spruce bogs near Harlan, Saskatchewan in 1942 and thereafter only seemed to encounter it in even numbered years (Masters, 1968). While *E. disa* has now been taken in consecutive years in the same area in Manitoba—it has not been retaken in the same bogs. In fact, I found it wanting in 1968 in the same Riding Mountain bog where I had found it in 1967 and John Polusny (*in litt.*) was unable to retake it in 1968 in the Sandilands bog where he found it the previous year. The pattern with biennial *Erebia* in Europe has nearby colonies randomly alternating with each other on the year of flight and it appears that this might be the case with *Erebia disa mancinus*. This is quite different from the pattern in biennial appearing *Oeneis* where populations over extensive areas are on the same cycle and alternation occurs only across a natural barrier such as a mountain range or desert.

*Erebia disa* has not yet been recorded in the United States (exclusive of Alaska). It almost certainly occurs in the norther tier of counties in Minnesota. The presence of *disa* at Aweme, Manitoba suggests that it might also occur in the Turtle Mountain area of North Dakota and there is also a good possibility

that it will be found in the Rockies of western Montana. The map (figure 1) shows the known localities and suggested range of *Erebia disa* in the central area. The Alberta localities are from Bowman (1951); the data for the other localities follows:

MANITOBA: Gillam (G. S. Brooks, 1942 and F. H. Chermock, 1967); Thompson (F. H. Chermock, 1967); The Pas, 1 July 1968, J. H. Masters and P. J. Conway; Harte Mountain, Porcupine Prov. Forest, 2 July 1968, J. H. Masters and P. J. Conway; Favel River, Duck Mtn. Forest Reserve, 3 July 1968, J. H. Masters and P. J. Conway; Blue Lakes, Duck Mtn. Prov. Park, 5 July 1968, J. H. Masters and P. J. Conway; Lake Jane, Riding Mtn. National Park, 25 June 1967, J. H. Masters; Aweme, N. Criddle (Brooks, 1942); Sandilands Provincial Forest (2 locations), June 1967, C. S. Quelch and John Polusny; Whiteshell Provincial Park, 29 June 1968, J. H. Masters.

ONTARIO: Reed Narrows, 29 June 1968, J. H. Masters; Longbow Corners, 29 June 1968, J. H. Masters and P. J. Conway; Hymers (Riotte, 1962); Favourable Lake (Riotte, 1959); Geraldton (Riotte, 1959); Nakina (Riotte, 1959); Ogoki Post (Riotte, 1959); Smoky Falls (Riotte, 1959).

SASKATCHEWAN: Harlan, June, R. J. Fitch (Masters, 1968); North shore of North Saskatchewan River, 20 miles north of Lloydminster, June, R. J. Fitch (Masters, 1968); 5 miles east of junction of highways 165 and 106, 10 June 1968, J. S. Nordin.

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